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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/549,589

09/19/2005

Bernardus Henrikus Wilhelmus Hendriks

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS

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EXAMINER

CHOW, LIXI

ART UNIT

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2627

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/549,589	Applicant(s) HENDRIKS, BERNARDUS HENRIKUS WILHELMUS	
	Examiner Lixi Chow	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9/19/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claims 1 and 11 are objected to because of the following informalities: the word “characterised” in claims 1 and 11 should be spelled --characterized--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4 and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hendriks et al. (WO 00/34949; hereafter Hendriks).

Regarding claim 1:

Hendriks discloses an optical scanning device (see Fig. 1) for scanning a multi-layer optical record carrier (see Fig. 3) when positioned in a scanning location in the device, the device being adapted for scanning a first information layer at a first information layer depth within the record carrier and a second information layer at a second information layer depth within the record carrier, the device comprising:

a radiation source (see Fig. 1, element 6) for generating a radiation beam;

an objective lens (see Fig. 1, element 10), located in an optical path between the radiation source and the scanning location, for converging a radiation beam to a spot on an information layer; and

an optical switching arrangement switchable between a first state, in which the device is arranged to scan a said first information layer, and a second state, in which the device is arranged to scan a said second information layer, wherein the optical switching arrangement comprises a compensator arranged to generate a different amount of spherical aberration in a radiation beam when in said first state and when in said second state (see Fig. 1, element 22, and page 9, lines 3-16),

characterized in that the compensator is further arranged to generate a different amount of vergence in a radiation beam when in said first state and when in said second state (change in vergence is created when the objective lens 10 is moved axially),

the different amounts of spherical aberration and vergence being selected such that a free working distance between said objective lens and said optical record carrier remains substantially constant when switching between said first and second states (see page 9, lines 11-16).

Regarding claim 2:

Hendriks discloses an optical scanning device according to claim 1, wherein a change in free working distance (Δf_{wd}) when switching between said first and second states is less than 5% of a difference (Δd) in the first and second information layer depths (since the free working distance is fixed, the Δf_{wd} is obviously less than 5% of the Δd).

Regarding claim 3:

Hendriks discloses an optical scanning device according to claim 2, wherein a change in free working distance (Δf_{wd}) is less than 1% of a difference (Δd) in the first and second information layer depths (since the free working distance is fixed, the Δf_{wd} is obviously less than 1% of the Δd).

Regarding claim 4:

Hendriks discloses an optical scanning device according claim 1, wherein a change in free working distance (Δf_{wd}) when switching between said first and second states is less than a focal tolerance $\Delta z = 0.5 (\lambda / NA^2)$ where λ is the wavelength of the said radiation beam and NA the numerical aperture of the objective lens (since the free working distance is fixed, the Δf_{wd} is obviously less than Δz).

Regarding claim 9:

Hendriks discloses a method of operating the optical scanning device of claim 1, comprising reading data from the record carrier during a scanning operation conducted on one information layer, and altering the optical characteristics of the optical switching arrangement in order to compensate for a wavefront aberration generated in the record carrier when conducting a subsequent scanning operation on the other layer (see Fig. 1, signal is being reproduced from the optical medium).

Regarding claim 10:

Hendriks discloses a method of operating the optical scanning device of claim 1, comprising writing data to the record carrier during a scanning operation conducted on one information layer, and altering the optical characteristics of the optical switching arrangement in order to compensate for a wavefront aberration generated in the record carrier when conducting a subsequent scanning operation on the other information layer (see page 4, lines 19-23; Hendriks indicates that the information is recorded on the recording layer, which shows that the scanning operation includes writing data to optical medium).

Regarding claim 11:

Claim 11 recites similar limitations as in claim 1; hence, claim 11 is being rejected under the same reasons set forth in claim 1.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hendriks in view of Tsuboi et al. (US 2001/0017985; hereafter Tsuboi).

Regarding claim 5:

Hendriks discloses all the features in claim 1; however, Hendriks fails to disclose that the compensator comprises a set of fluids. On the other hand, Tsuboi discloses an optical element capable of controlling its optical transmittance to thereby select an arbitrary focus position (see abstract and par. [0175]), wherein the optical element comprises a set of fluids having a switchable configuration (see Fig. 20A-20B; elements 8 and 9 correspond to a set of fluids).

At the time the invention was made, it would have been obvious to modify the compensator of Hendriks to include a set of fluids having switchable configuration as taught by Tsuboi. One of ordinary skill in the art would have been motivated to do this because focal length can be arbitrarily selected to thereby improve the reading/writing performance.

Regarding claim 6:

Tsuboi discloses the optical element, wherein said set of fluids provides a fluid meniscus of which the shape is varied when switching between a first and second states to provide the

different amounts of spherical aberration and vergence (see Figs. 20A-20B and par. [0175]; the shape of the curve depends on the amount of voltage applies to the electrodes 10 and 11; the change of focal length corresponds to different amounts of spherical aberration and vegence).

At the time the invention was made, it would have been obvious to modify the compensator of Hendriks to include a set of fluids having switchable configuration as taught by Tsuboi. One of ordinary skill in the art would have been motivated to do this because focal length can be arbitrarily selected to thereby improve the reading/writing performance.

6. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hendriks in view of Ogasawara et al. (US 2002/0024688; hereafter Ogasawara).

Regarding claim 7:

Hendriks discloses all the features in claim 1; however, Hendriks fails to disclose the compensator comprises a grating element. On the other hand, Ogasawara discloses an optical scanning device comprising a grating element arranged to provide different amount of spherical aberration and vergence (see Figs. 15, 16 and 21A-21B; element 104 is the grating element, where the different amount of spherical aberration and vergence is realized by the different amount of voltage apply to the electrodes 117 and 118).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Hendriks and Ogasawara because Ogasawara shows that aberration of varies type can be compensated/corrected (see par. [0012]).

Regarding claim 8:

Hendriks discloses all the features in claim 1; however, Hendriks fails to disclose the compensator comprises a grating element. On the other hand, Ogasawara discloses an optical

scanning device comprising a phase structure having a non-periodic pattern which does not regularly repeat in a radial direction on a compensator, the phase structure being arranged to provide the different amounts of spherical aberration and vergence (see Figs. 1-2 and abstract).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Hendricks and Ogasawara because Ogasawara show that aberration of varies type can be compensated/corrected by adopting different types of electrodes and applying different voltage to the electrodes (see par. [0012]-[0013]).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamamoto et al. (US 6,992,966) is cited because Yamamoto et al. disclose a spherical aberration compensator used in an optical pickup device.

Hain et al. (US 7,050,214) is cited because Hain et al. teach an optical compensation element for compensating spherical aberration which occurs when switching between layers in a multilayered optical medium.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lixi Chow whose telephone number is 571-272-7571. The examiner can normally be reached on Mon-Fri, 8:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2627

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thang V. Tran/
Primary Examiner, Art Unit 2627

LC 5/6/08